

What is claimed is:

1. An OFDM signal collision position detection apparatus
that detects collision positions of OFDM signals
transmitted from a plurality of cells, comprising:
 - a known signal measuring section that measures
reception power of a known signal;
 - a data signal measuring section that measures
reception power of a data signal;
 - a data signal prediction section that predicts
reception power of the data signal based on the measured
reception power of the known signal;
 - a power comparison section that compares the
reception power of the data signal predicted by said data
signal prediction section with the reception power of
the data signal measured by said data signal measuring
section for each subcarrier; and
 - a collision position detection section that detects
positions of data symbols colliding with each other
between a plurality of cells by detecting positions where
there is a large variation of said measured reception
power of the data signal with respect to said predicted
reception power of the data signal based on the comparison
result obtained by said power comparison section.
2. The OFDM signal collision position detection apparatus
according to claim 1, wherein said collision position
detection section detects a collision when said measured

reception power of the data signal is greater than a first threshold in a positive direction with respect to said predicted reception power of the data signal or smaller than a second threshold in a negative direction.

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3. An OFDM reception apparatus that receives and demodulates an OFDM signal, comprising:

a known signal measuring section that measures reception power of a known signal;

10 a data signal measuring section that measures reception power of a data signal;

a data signal prediction section that predicts reception power of the data signal based on the measured reception power of the known signal;

15 a power comparison section that compares the reception power of the data signal predicted by said data signal prediction section with the reception power of the data signal measured by said data signal measuring section for each subcarrier;

20 a collision position detection section that detects positions of data symbols colliding with each other between a plurality of cells by detecting positions where there is a large variation of said measured reception power of the data signal with respect to said predicted reception power of the data signal based on the comparison result obtained by said power comparison section; and

25 an error correcting decoding section that applies error correcting decoding processing to the received OFDM

signal by reducing likelihood of data symbols at positions at which said collision position detection section has detected the collision.

- 5 4. The OFDM reception apparatus according to claim 3, wherein said collision position detection section uses a threshold for detecting a position where said variation is large, and

10 said OFDM reception apparatus further comprises:
an error rate calculation section that calculates an error rate of decoded data obtained by said error correcting decoding section; and

a threshold control section that changes said threshold at said collision position detection section
15 according to the error rate calculation result.

5. The OFDM reception apparatus according to claim 3, wherein said collision position detection section uses a threshold in detecting positions where said variation
20 is large, and

said OFDM reception apparatus further comprises:
a reception quality detection section that detects reception quality of the received OFDM signal; and
a table that stores data of thresholds associated
25 with the reception quality and outputs said threshold data corresponding to said detected reception quality to said collision position detection section.

6. The OFDM reception apparatus according to claim 3, wherein said collision position detection section uses a threshold in detecting positions where said variation is large, and

5 said OFDM reception apparatus further comprises:
 an error rate calculation section that calculates an error rate of decoded data obtained from said error correcting decoding section;

 a reception quality detection section that detects
10 reception quality of the received OFDM signal;
 a threshold control section that controls a threshold in said collision position detection section;
 and

 a table creation section that creates a lookup table
15 showing a relationship between said threshold and an error rate when the threshold controlled by said threshold control section is used for each reception quality,
 wherein said threshold control section sets an optimal threshold in said collision position detection
20 section with reference to said lookup table.

7. An OFDM signal collision position detection method comprising:

 a step of predicting reception power of a data signal
25 from reception power of a known signal; and
 a step of comparing reception power of said predicted data signal with the actually measured reception power of the data signal for each subcarrier and every burst

period and regarding, when the reception power of the data signal is changed from the reception power predicted from the reception power of the known signal, the data signal as being involved in a collision between a plurality of cells and thereby detecting positions of data symbols colliding with each other between a plurality of cells.

8. An OFDM reception method, comprising:
 - a step of predicting reception power of a data signal from reception power of a known signal;
 - a step of comparing reception power of said predicted data signal with the actually measured reception power of the data signal for each subcarrier and every burst period and regarding, when the reception power of the data signal is changed from the reception power predicted from the reception power of the known signal, the data signal as being involved in a collision between a plurality of cells and thereby detecting positions of data symbols colliding with each other between a plurality of cells;
 - and
 - a step of applying error correcting decoding processing by reducing likelihood of data symbols at positions where the collision is detected.